

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Cancelled)
7. (New) A method of producing a mixture of carbon monoxide and hydrogen

from methane natural gas by steam reforming, oxygen reforming, or steam-oxygen reforming, comprising the steps of:

contacting said methane natural gas with a catalyst, wherein said catalyst consists essentially of a Θ -Al₂O₃-supported nickel catalyst of the formula:



wherein M₁ is an alkali metal; each of M₂ and M₃ is an alkaline earth metal; and M₄ is a IIIB element or a lanthanide; wherein the nickel reforming catalyst is composed of:

3-20 wt. % of nickel (Ni) against Θ -Al₂O₃;

0-0.2 molar equivalent of M₁ and 0-4 molar equivalent of M₂ cocatalysts against nickel;

0-1.0 molar equivalent of M₃ and 0.01-1.0 molar equivalent of M₄ against zirconium; and

0.01-1.0 molar equivalent of ZrO₂ against Θ -Al₂O₃.

maintaining the methane natural gas-to-steam molar ratio in the range of from 0 to 6;

maintaining the methane natural gas-to-oxygen molar ratio in the range of 0 to 1;

maintaining the reaction temperature in the range of 600 to 1000°C;

maintaining the reaction pressure in the range of 0.5 to 20 atm.; and

maintaining the space velocity in the range of 1,000 to 1,000,000 cc/hr·g-cat.

8. (New) The method of Claim 7, wherein said method comprises steam reforming and the methane natural gas-to-steam molar ratio is in the range of from 1 to 6.

9. (New) The method of Claim 7, wherein said method comprises oxygen reforming and the methane natural gas-to-oxygen molar ratio is in the range of from 0.1 to 1.

10. (New) The method of Claim 7, wherein said method comprises steam-oxygen reforming and the methane natural gas-to-steam molar ratio is in the range of from 1 to 5, and the methane natural gas-to-oxygen molar ratio is in the range of from 0.1 to 1.